

## Supplementary Figure S2

SAXS patterns of DPPE/DPPG in the absence (A) and presence (B) of 4 mol% LL-37 at temperatures indicated in the figure. Solid lines show full- $q$ -range fits. WAXS patterns are shown in the insets. Application of the fitting model did not yield unequivocal results due to insufficient data quality of gel phase PE/PG patterns in the presence of LL-37. Whereas positional correlations are only weak between bilayers of pure PE/PG they increase in the presence of LL-37, which most probably arises from partial shielding of negative charges leading to stacking of the bilayers, which was also observed in FFTEM images. Note the increase of inter bilayer positional correlations upon increasing the temperature from 10°C to 40°C. The most plausible explanation for this involves the larger  $d$  spacing at 40°C (122 Å compared to 84 Å at 10°C). Assuming a constant number of bilayers  $N$  contributing to a scattering domain, the correlation length (or scattering domain size)  $L = N \cdot d$  would increase with increasing lamellar repeat  $d$ . As the width of Bragg peaks is proportional to  $1/L$ , a Bragg peak can become sharper upon increasing lamellar repeat if  $N$  remains unchanged.

